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ARCHEOLOGY AND ETHNOLOGY.[1]

The International Congress of Anthropology and Prehistoric Archeology of Paris, 1889.—(*Continued from page 844.*) —SEANCE LIBRE.—*Questions—First Question :* "The Existence of Man During the Tertiary Period."

M. Boule presented a photograph of the under jaw of the *Dryopithecus fontani*, found in the Miocene of Saint-Gaudens, Haute Garonne.

M. Delgado, at the head of the Museum of Archeology at Lisbon, presented a collection of flints gathered at Otta, Portugal; thirty came from the Tertiary sandstone and twenty-four came from the surface, and the discussion turned to the existence of man during the Tertiary epoch. He contended that those from the deposit at Otta were really and truly Tertiary, but that the pieces of flint from the surface correspond to those which had been found at Otta by Ribeiro, and, consequently, they were not those which came from the Tertiary.

M. Gabriel de Mortillet praised the method of searching which M. Delgado had pursued. The fact that M. Delgado had once been unable to find the worked flints in the Tertiary deposit proved nothing to his mind, for these worked silex were comparatively rare. There had never been many of them found, and the series such as presented by M. Delgado of twenty-four were about as much any one had been able to find. In the richest deposits of the Quaternary period one can search for days and days and cubic meter after cubic meter of the gravels without finding a single instrument therein, and yet this work, if continued long enough and extended over sufficient territory, as is done in the railroad and canal cuttings at Chelles and at Saint-Acheul, demonstrated the fact that they are in existence in these deposits by the hundreds and even by the thousands.

A lengthy discussion ensued over the methods employed by prehistoric man in the working of silex, illustrated by drawings by M. A. de Mortillet, criticised by others, showing the cracking of flint by the heat of the sun, exposure to the air, by fire, by percussion, and by pressure. M. Docteur Capitan presented a full series of the implements used, and gave a practical demonstration of the methods employed. He had the percuteur or hammer with and without the intervention of a punch, which might be by stroke, direct or indirect, as the anvil, the nucleus, the flake. The primary work was done usually by percussion, but some of the small and fine flakes, such as those of obsidian made by the Mexicans, were possibly made by pressure.

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[1] Edited by Dr. Thomas Wilson, Smithsonian Institution, Washington, D. C.

A flake, larger or smaller, once obtained, was subjected to secondary work by which it was made into the arrow or spear-head, knife or hatchet, according to the intention of the maker and the possibilities of the material. This was done by secondary chipping,—that is, chipping the flake, called in French retouching: 1, by percussion; 2, on the anvil; 3, by pressure; 4, by hammering or pecking; 5, by grinding or polishing. For the pressure a bone implement from paleolithic Grotte de l'Eglise, evidently much used, belonging to the collection of Dr. Capitan, was exhibited.

Which and how many of these methods were employed can only be determined from an inspection of the specimen, the condition in which it was found, and the objects associated with it. From these elements were to be resolved the question as to the man who made the implement and the age or epoch to which he belonged. All but the last two methods were employed alike during both the paleolithic and neolithic periods, while the last two were peculiar to the neolithic.

M. Gabriel de Mortillet, and at the end Belucci and Vilanova, all sustained the proposition that there were proofs of the existence of man during the Tertiary epoch. This was combated by M. Cartailhac, Boule, and Rames.

Monsieur Macedo put up the question of the discoveries of prehistoric human remains at Castenedolo, in Lombardy, Italy, which provoked a discussion by MM. Topinard, de Mortillet, and Cartailhac. Reports in the *Anthropologist*, that the largest investigations made by M. Arturo Issel, of Genoa, adopting the opinion of the geologist, Stoppani, confirms him in the opinion that neither the ancient nor the new skeletons or cemetery at Castenedolo belonged to the Tertiary man.

Second Question:—"The Mines and Workshops of Flint."

M. de Baron de Loë read, on behalf of himself and M. de Munck, a notice upon the excavations recently made in the neolithic *atelier*, or workshop at Spiennes, near Mons, Hainault, Belgium. This memoir added a number of interesting things to those which had already been recorded by MM. Cornet, Briart, and Houzeau de Lehaye at the meeting of this Congress in 1879 in Brussels. The result of the investigation of MM. Loë and de Munck into these wells or shafts of the mines of flint in Spiennes showed that being brought on the surface the flint was wrought in special workshops in the neighborhood, which were without necessary connection with the mine, and shown by slight depressions full of broken and incomplete pieces and chips and flakes, the débris of the shop. Worked objects of deer horn and bone were found, and the pottery was fine and well modeled. The workshops may have been huts occupied as habitations, more or less temporary, by the workmen. They were probably made of some light material, of which the traces are still found on the surface. The special characteristics of the objects found in these workshops showed that there had been a division of labor, and that each workman confined himself largely to the manufacture of a single implement. These workshops had furnished prehistoric flint implements to Hainault, Brabant, and possibly to the North of France.

M. de Munck insisted upon the last point. He had found fifteen neolithic stations in direct relation with Spiennes, which were divided among forty-five communes. The location of these workshops had given rise to a network of roads of communication that have remained in usage for a long time after. M. de Munck prophesied that searches of the same order, if pursued in other places and localities, and with other materials which composed the industries of the age of stone, would give results of much interest and benefit.

Mr. Thomas Wilson continued the discussion by a description of the quarry at Flint Ridge, near Newark, in Licking County, Ohio. In a space ten miles long and three miles wide had been found a thick bank or stratum of silex from four to twelve feet in thickness, which the aborigines had attacked by means of wells dug through the surface soil and clay. After piercing this soil or clay they broke down through the stratum of silex by means of fire, and extracted it in great blocks. The flint which was thus obtained was broken up in its place, and was spread around over the surface of the entire plateau, where its remains were found in many workshops, and the implements thus made were to be found disseminated throughout the entire state of Ohio.

M. Cartailhac described the exploitations made by himself and M. Boule in the mines of flint at Mur-de-Barrez, in Aveyron, of which he had given reproduction which was exhibited at the exposition. He said that similar wells or shafts had been found by Baron de Baye in the Department of Marne, and also many years since by Cuvier and Brongniart in the Chalk of Meudon.

Prince Poutjatine, one of the delegates from Russia, presented to the congress a superb collection gathered from the north of Moscow, near Bologoje, district of Waldai, province of Novogorod. There were a number of polished stone hatchets of various dimensions, but generally small; worked flint in the form of points, arrow-heads and others; worked bones, arms, tools, pendeloques, ornaments, harpoons, a fish-hook in two pieces worked with a joint. He has many fragments of pottery, which had been decorated as is common among the Indians of North America; that is, by pressing upon the soft clay certain textile fabrics, strings, cords, twine, etc., which made the ornamentation.

The Prince has sent to the U. S. National Museum a series of casts, as well as several original pieces of prehistoric pottery, all decorated as above described. These were exchanged for a series from the United States. The similarity of these two series so widely distant is remarkable. The astonishment of the beholder is increased when he is told that heretofore this mode of decoration was believed to be confined to the United States, and that none except that here described have ever been reported from Europe.

The Prehistoric Man of Spy.—Among the most interesting exhibits at the recent meeting of the International Geological Congress at Washington was that of M. Max Lohest, of Liége, Belgium. Although unfortunately M. Lohest's paper was crowded out, and consequently the members had not the advantage of hearing it, yet his photographs and pamphlet were examined by several of those who combine archeology with geology.

M. Lohest's paper read before the Anthropological Congress gives an account of his investigation in the grotto of Spy, near Namur, on the property of the Count of Beauffort. In this cavern M. Lohest found, under a thick bed of rubbish and fallen fragments of limestone, three distinct ossiferous beds. The uppermost of these was in part stalagmitic, and contained a few bones of an undetermined deer, a bear's tooth, and some pieces of the bones of the mammoth. Besides these, and mingled with them, were great numbers of flint implements of various patterns, some of them resembling the type known as "Mousterien," from the cavern of that name, and others are like those found in the well-known Engis cave in Belgium. Some are notched like saws, and of very thin and delicate workmanship. They consist of scrapers, points, blades, knives, etc., worked on one face, some apparently to be set in handles, and others not.

No instruments of bone or of ivory were found in this upper layer, and the flints are mostly covered with a white or bluish patina, sometimes very thick.

Under this stalagmitic layer was a second ossiferous bed, usually red from the presence of iron ore, many fragments of which were found. Here occurred the following fauna: *Rhinoceros tichorhinus,* abundan; *Equus caballus* (horse), very common; *Cervus elaphus* (red deer); *Cervus canadensis?* (elk); *Cervus megaceros* (Irish elk); *Cervus tarandus; Ovis aries* (sheep); *Bos primigenius* (bison); *Bos priscus* (aurochs); *Elephas primigenius* (mammoth), very abundant; *Ursus spelæus* (cave bear), scarce; *Meles taxus* (badger); *Canis vulpes* (fox); *Canis lupus?* (wolf), *familaris?* (dog); *Mustela foina* (weasel); *Hyæna spelæa* (cave hyena), very abundant; *Felis spelæa* (cave lion), a few teeth; *Felis catus* (cat); *Sus scrofa* (pig). These determinations are due to M. Fraipont, professor of paleontology at the University of Liége. Numerous hearths were also found on this layer, composed of stones, and containing burnt wood and ashes.

The materials used by the old inhabitants of this grotto were flint, phthanite, sandstone, chalcedony, opal, ivory, bone, and horn, and the total number of implements obtained was very large. There are 140 "Mousterien" points, most of them thick at the base and not intended for setting in handles, whose average dimensions are four inches long by three inches wide; a number of fine flakes and awls, and arrows or dart-heads, of very fine workmanship, some of them five inches long, resembling in type the "solutreèn" implements of the Dordogne, a single small core from which flakes have been taken, and numerous blocks rejected on account of some defect after a flake or two had been struck off, and 300 scrapers of various size and types.

Implements, etc., of ivory were more numerous in this layer than in any other cave in Belgium. Chips were so abundant as to form a breccia in one place. The objects found were for the most part for dress or ornament, and the material had often degenerated into a chalky substance. Many of them were unfinished, or the different stages of manufacture were revealed. Some of them were marked with striations, as was also the case with the implements of horn and of bone found with the ivory. On a rib of the mammoth or rhinoceros was found a series of "circumflex accents" ranged one above another, of which a figure is given in the pamphlet. One hollow horn was filled and stained with iron oxide, and is supposed by M. Lohest to have been a receptacle of this material for coloring the persons or the implements of the cavern. These with four fragments of pottery, found by another investigator, complete the list of relics from the second ossiferous layer.

The third contains a fauna, so far as it goes, identical with that of the second bed. *Rhinoceros tichorhinus*, abundant; *Equus cabàllus*, very abundant; *Cervus elaphus*, rare; *Cervus tarandus*, rare; *Bos primigenius*, common; *Elephas primigenius*, common; *Ursus spelæus*, rare; *Meles taxus*, rare; *Hyena spelæa*, abundant. In this bed were found, as in the other, abundance of flint implements, but somewhat different in form and material from those above mentioned. The great interest of this layer, and, indeed, of the whole find, is the discovery not only of the works of man, but of man himself, in the form of two partial skeletons, one skull of which is nearly complete. This, of course, forms the central point of M. Lohest's paper, and he justly goes into detail concerning it. We will condense his account, written by Dr. Fraipont:

"The human relics belong to the most ancient fossil race, that of Neanderthal or of Canstadt. The skulls, fairly complete, present all the ethnic characters of that race, whose remains are known from France, Italy, Austria, Germany, and Sweden. Hitherto only a single jaw has been obtained from a cave (Naulette) in Belgium."

One of these skulls is apparently that of an old woman; the other that of a middle-aged man. They are both very thick. The former is clearly dolichocephalic (index 70), the other less so. Both have very prominent eyebrows and large orbits, with low, retreating foreheads, excessively so in the woman. The lower jaws are heavy; the oldest has almost no projecting chin. The teeth are large, and the last molar is as large as the others. These points are characteristic of an inferior and the oldest-known race. The bones indicate, like those of Neanderthal and Naulette, small, square-shouldered individuals. M. Lohest adds:

"The skeletons from Spy are among the most important discoveries relating to the oldest-known race of men. The cave shows three ossiferous layers, and remains of the mammoth occur in all three. Stone implements chipped only on one face indicate the 'Mousterien' type of industry.

"The relics of the three layers indicate an advance in the character of the workmanship.

"The second layer, by its association of chipped tools with ornaments of ivory and bone, shows its close relationship to the 'Mousterien' type, and, at the same time, is free from all suspicion of accidental mixture.

"The study of the bones of the lowest level proves beyond doubt that the earliest race of men as yet known in Belgium had a skull of the type 'Neanderthal,' and used instruments of the 'Mousterien pattern.''

In the above discovery we have at least clear and indisputable traces of the men whom up to now we have known almost entirely by their tools. A few disjointed bones not free from suspicion are now fortified by evidences that cannot be gainsaid, and the old Canstadt or Neanderthal race stands before us as an extinct but real ancestor.—*American Geologist, Sept.*, 1891.

M. Max Lohest made several visits to the Department of Prehistoric Anthropology during the International Geological Congress, and we had much pleasure in renewing acquaintance formed years ago. I had visited the Grotte de Spy along with the other Belgian prehistoric caverns, and was acquainted with his work. He had a full display of objects from these caverns at the French exposition, and read a paper before the International Congress of Anthropology and Prehistoric Archeology.

Not the least interesting episode of the geologic congress were the visits of Professor Gaudry and Marcellin Boule to the Department of Prehistoric Anthropology. They are both, like M. Lohest, much interested in the antiquity of man, and many things shown them ill appreciated by the American public were regarded by them with intense eagerness and interest.

Continuation and Close of Proceedings of American Association for Advancement of Science.—*September 30th.*—Saturday was the last and most attractive day of the meeting. It opened with a most interesting paper by Mr. Frank H. Cushing upon the outlines of Zuñi creation and migration myths in their relation to the Ka-Ka and other dramas or dances. It was carefully written, well delivered, and was a valuable contribution to the history of these Indians. The illustrations displayed were elegant, and as the paper will be published in due course, it is deemed wise not attempt a description.

Mr. James Mooney gave an impromptu and extemporaneous description of the Messiah religion and the ghost dance. Mr. Mooney spent some months among the Apache and Kiowa Indians, and had just returned with his trunk full of Indian relics and his head full of Indian stories, myths, and traditions. He had witnessed the ghost dance many times, and had innumerable photographs illustrative thereof. He did not attempt to read a paper. He talked, acted, and danced. He roused his audience to a pitch of enthusiasm rarely seen in a scientific assemblage. Mr. Mooney stated that the present Messiah excitement is not the first of its kind among the Indians, and is not even peculiar to the race. It is only another expression of the universal longing for a happiness that died when the world was young, and a faith that in a time yet to come we shall be able to close our eyes upon present miseries and waken again to the realization of the old ideals. The Messiah doctrine is born of the despair of the Indian, who finds himself helpless and starving before the white man, and sees no hope but in the direct interference of a redeemer of the red race, who is invoked in the wild ceremonial of the ghost dance. The present agitation originated among the Poütes in Nevada, and was carried by native apostles to nearly every tribe of the plains and mountains from the British border almost to Mexico. The belief is that the whites are to be dispossed, and that the land will be restored to the Indians, together with the buffalo and other game and all the old-time Indian life. There are various theories as to how this will be accomplished, the favorite one being that a new earth, upon which are all the dead Indians, the buffalo and other game, will come, preceded by a wall of fire, and slide over this old world. The believers will be lifted up over the wall of fire by means of the sacred crow feathers which they wear on their heads, while the whites will be driven before the fire to the eastern land across the the water from which they came. In the dance they pray for the speedy coming of their deliverance, and sing of the old pleasures of the hunt and the camp, and of their present miserable condition. These songs are all plaintive in tone, and many of them are really beautiful. The great majority are in the Arapaho language. Those who become unconscious in the trance—through the intense nervous strain and the hypnotic action of the priests—catch glimpses of the glory to come, and on awaking recite these visions in songs which are taken up at the next dance. As many as a dozen frequently become unconscious in a single night, and lie for hours perfectly rigid upon the ground.

The following papers were considered as read by title and passed for want of time: An Ancient Human Cranium from Southern Mexico, F. W. Putnam. The Length of a Generation, C. M. Woodward. Burial Customs of the Hurons, Chas. A. Hirschfelder. Study of a Dwarf, Frank Baker. Stone Drills and Perforations in Stone from the Susquehanna River, Atreus Wanner. Evidences of the High Antiquity of Man in America, Thos. Wilson. On Bone, Copper, and Slate Implements Found in Vermont, G. H. Perkins. Some Archeological Contraventions, Gerard Fowke. On the Distribution of Stone

Implements in the Tide-Water Province, W. H. Holmes. Aboriginal Novaculite Quarries in Arkansas, W. H. Holmes. Games of Teton Dakota Children, James Owen Dorsey. Geographical Arrangement of Prehistoric Objects in the U. S. National Museum, Thos. Wilson. Curious Forms of Chipped Stone Implements Found in Italy, Honduras, and the United States, Thos. Wilson. Inventions of Antiquity, Thos. Wilson. Study of Automatic Motion, Joseph Jastrow. Race Survivals and Race Mixture in Great Britain, W. H. Babcock.

SCIENTIFIC NEWS.

The Ninth Congress of the American Ornithologists' Union will convene in New York city on Tuesday, November 17th, 1891, at eleven o'clock A. M. The meetings will be held at the American Museum of Natural History, Central Park (77th Street and Eighth Avenue).

Philip Herbert Carpenter, M. A., F. R. S., died October 23d. He was born in London, February 6th, 1852; was educated at Cambridge, and in 1877 was appointed assistant master at Eton College. In 1868 he was a member of the scientific staff of the deep-sea exploring expedition of H. M. S. Lightning, and was with H. M. S. Porcupine, in the same capacity, in 1869–'70. In 1875 he was appointed assistant naturalist on H. M. S. Valorous, which accompanied Sir George Nare's Arctic expedition to Disco Island. In 1883 the deceased scientist was awarded the Lyell fund by the Geological Society of London, and in 1885 he was elected a fellow of the Royal Society. He was the author of a number of valuable works, including a "Report Upon the Comatulæ Dredged by the United States Survey in the Caribbean Sea," published last year.

At the meeting of the Academy of Natural Sciences of Philadelphia, on October 20th, the committee on the Hayden Memorial Geological Fund reported that they had decided to award the Hayden medal and accompanying fund this year to Professor Edward Drinker Cope, in recognition of his researches in the domain of geology and paleontology. This is the second award of this medal of honor, the first having been made to Professor James Hall, the veteran geologist of New York, and pioneer in the field of American paleontology.